

IN THE CLAIMS

1.-78. (Canceled)

79. (Previously Presented) A method for forming an interconnect in a contact hole defined by walls of an insulating material and a supporting substrate, comprising the steps of:

- depositing titanium on the supporting substrate at the bottom of the contact hole;
- depositing a titanium nitride layer on the walls of the contact hole and the supporting substrate;
- annealing the supporting substrate to form titanium silicide between the supporting substrate and the titanium nitride layer;
- filling the contact hole with a conductive material deposited on the titanium nitride layer by a CVD process, utilizing a pressure of at least approximately 1.1 atmospheres;
- and
- forming a metal line on the conductive material over the contact hole.

80. (Previously Presented) The method of claim 79, wherein the contact hole has an aspect ratio of at least 2:1.

81. (Previously Presented) A method for forming an interconnect in a contact hole defined by walls of an insulating material and a supporting substrate, comprising the steps of:

- depositing titanium on the supporting substrate;
- annealing the supporting substrate;
- filling the contact hole with a conductive material by a CVD process, utilizing a pressure of at least approximately 1.1 atmospheres the depth of the contact hole being at least twice the diameter of the contact hole ; and
- forming a metal line on the conductive material over the contact hole.

82. (Previously Presented) The method of claim 81, wherein the contact hole has an aspect ratio of at least 2:1.

83. (Previously Presented) The method of claim 81, wherein the annealing step comprises annealing in a processing chamber having an inert gas ambient.

84. (Previously Presented) The method of claim 81, wherein the annealing step comprises annealing in a processing chamber having a nitrogen-containing ambient.

85. (Previously Presented) The method of claim 81, wherein the conductive material comprises aluminum.

86. (Previously Presented) The method of claim 81, wherein the conductive material comprises tungsten.

87. (Previously Presented) A method for forming an interconnect on the bottom of a contact hole in a supporting substrate comprising silicon, comprising the steps of:

depositing titanium on the bottom of the contact hole in the supporting substrate to a thickness of approximately 500 to 2000 angstroms; and

annealing the supporting substrate in a processing chamber at a pressure of at least approximately 1.1 atmospheres and a temperature of less than approximately 700 degrees Celsius to form titanium silicide directly on the supporting substrate; and

filling the contact hole with a conductive material deposited on the titanium nitride layer by a CVD process, utilizing a pressure of at least approximately 1.1 atmospheres.

88. (Previously Presented) The method of claim 87, wherein the processing chamber contains an inert gas ambient.

89. (Previously Presented) The method of claim 87, wherein the processing chamber contains a nitrogen-containing ambient.

90. (Previously Presented) A method for forming an interconnect in a contact hole defined by walls of an insulating material and a supporting substrate, comprising the steps of:
depositing titanium on the supporting substrate at the bottom of a contact hole;
depositing a titanium nitride layer on the walls of the contact hole and the supporting substrate;
annealing the supporting substrate to form titanium silicide between the supporting substrate and the titanium nitride layer;
forming a tungsten plug in the contact hole directly on the titanium nitride layer by a CVD process at a pressure of at least approximately 1.1 atmospheres; and
forming a metal line on the tungsten plug over the contact hole.
91. (Previously Presented) The method of claim 90, wherein the contact hole has an aspect ratio of at least 2:1.
92. (Previously Presented) The method of claim 90, wherein the titanium is deposited to a thickness of approximately 500 to 2,000 angstroms.
93. (Previously Presented) The method of claim 90, wherein the titanium nitride is deposited to a thickness of approximately 30 to 300 angstroms.
94. (Previously Presented) The method of claim 90, wherein the processing chamber contains an inert gas ambient.
95. (Previously Presented) The method of claim 90, wherein the annealing step is performed at a temperature of less than approximately 700 degrees Celsius.
96. (Previously Presented) The method of claim 90, wherein the tungsten plug is formed by depositing tungsten and force-filling the deposited tungsten into the contact hole at a pressure of at least approximately 1.1 atmospheres.

97. (Previously Presented) The method of claim 90, wherein the tungsten plug is formed by depositing tungsten using chemical vapor deposition at a pressure of at least approximately 1.1 atmospheres.

98. (Previously Presented) The method of claim 90, wherein the metal line comprises aluminum.

99. (Previously Presented) The method of claim 90, wherein the metal line has a thickness of approximately 2,000 to 5,000 angstroms.